



Dynamic Transfer Operating and Scheduling Requirements, Version 3

Effective: 11/13/12

Version 3 of this Business Practice updates the process for submitting **Dynamic Transfer**¹ Capacity from sending notification by fax to sending the notification by email in step H.1.a and H.1.c.

¹A term that refers to methods by which the control response to load or generation is assigned, on a real-time basis from the Balancing Authority to which such load or generation is electrically interconnected (native Balancing Authority) to another Balancing Authority (attaining Balancing Authority) or other controlling entity on a real-time basis. This includes Pseudo-Ties, Dynamic Schedules, and dynamic arrangements within the BPA Balancing Authority Area.

A. Introduction

1. The Dynamic Transfer Operating and Scheduling Business Practice combines two existing business practices, the Dynamic Schedules Business Practice and the Remote Resources and Remote Loads Business Practice. These business practices are being consolidated into one business practice to update technical and operational requirements needed to effect dynamic transfers on Bonneville Power Administration's (BPA) system.
2. This business practice sets forth the technical and communication requirements for a **Customer**¹ to use BPA's transmission system for Dynamic Transfers. Entities desiring to effect Dynamic Transfers on BPA's system must use firm transmission rights and must either (1) have had their use of Dynamic Transfer approved by BPA as of the date of this business practice or (2) request **Dynamic Transfer Capability**² pursuant to the Requesting Dynamic Transfers - Pilot Business Practice or its successor.
3. This business practice may require some Customers to upgrade their telemetry for projects that are dynamically transferred. BPA understands that this may take Customers some time to accomplish. BPA will work with its Customers to help them comply with these requirements. BPA encourages Customers to contact their Account Executive if they have questions or concerns about how this business practice may impact them.

B. Eligibility Criteria

1. New requests for Dynamic Transfer are subject to BPA's Requesting Access to Dynamic Transfer Capability - Pilot business practice or its successor.
2. The **Dynamic Transfer Entity**³ must have executed a **Dynamic Transfer Agreement**⁴, or equivalent agreement, and other agreements as appropriate, with BPA, prior to implementation of a Dynamic Transfer that involves the use of BPA's transmission system or the use of non-Federal transmission within BPA's Balancing Authority Area.
3. Each Balancing Authority involved in a Dynamic Transfer must have executed a Dynamic Transfer Operating Agreement, or equivalent agreement.
4. The Dynamic Transfer Entity may only effect Dynamic Transfers on BPA's transmission system with firm transmission rights.

¹Any customer taking service under Use of Facilities (UFT), Formula Power Transmission (FPT), Integration of Resources (IR), Part II or Part III of the OATT.

²The capability of the transmission system to accommodate continuous ramping of a resource (s) over a pre-determined range, such that the control of the electrical output of such resources(s) can be varied from moment to moment by an entity other than the host utility/host Balancing Authority Area operator.

³A load, generator, generation provider, Transmission Customer, (Customer), or other party that is using BPA transmission to effect a Dynamic Transfer.

⁴An agreement between BPA and an Applicant that sets forth the requirements for use of Dynamic Transfer Capability on BPA's system.

5. The Dynamic Transfer Entity that requires a Dynamic Transfer shall be operating within a Balancing Authority Area recognized by the WECC.
6. The Dynamic Transfer Entity must coordinate with its Balancing Authority, BPA, and any other impacted Balancing Authorities to ensure that procedures are in place and appropriate agreements executed to facilitate the desired Dynamic Transfer.
7. The Dynamic Transfer Entity and all involved Balancing Authorities must comply with WECC and NERC (or successor organizations) standards and policies.

C. Telemetry

1. Telemetry requirements for implementation of a Dynamic Transfer into, out of, or through BPA's Balancing Authority Area are described below:
 - a. BPA must test and approve in advance all systems necessary, as determined by BPA, to effect a Dynamic Transfer for each Dynamic Transfer Entity that desires to engage in a Dynamic Transfer.
 - b. The Dynamic Transfer Entity will provide BPA a telemetry signal corresponding to each Dynamic Transfer e-Tag representing the Dynamic Transfer. BPA will determine where the appropriate signal will emanate from. This is the **Dynamic Transfer Request Signal**¹.
 - c. The Dynamic Transfer Request Signal will be updated at least once every four seconds and will conform to ICCP requirements, or equivalent requirements as determined by BPA, for data format, accuracy, and reliability consistent with BPA's **AGC**² cycle time and anti-aliasing filtering.
 - d. If the desired Dynamic Transfer sources or sinks in BPA's Balancing Authority Area, BPA will send a **Dynamic Transfer Return Signal**³ to the Dynamic Transfer Entity in response to the Dynamic Transfer Entity's Dynamic Transfer Request Signal described above. The Dynamic Transfer Return Signal will be based on the actual response to the Dynamic Transfer Entity's Dynamic Transfer Request Signal. The Dynamic Transfer Return Signal will be the official Dynamic Transfer.

¹The telemetry signal provided by the Customer or other applicable Entity that corresponds to each Dynamic Transfer e-Tag representing the Dynamic Transfer.

²Automated Generation Control

³The return telemetry signal that BPA sends to the Customer or other applicable Entity, which is the response to the Dynamic Transfer Request Signal.

- e. BPA will provide a **Dynamic Transfer Limit Signal**¹ to the Dynamic Transfer Entity continuously in real-time. This Dynamic Transfer Limit Signal will indicate the maximum allowable Dynamic Transfer. The Dynamic Transfer Entity shall adhere to this Dynamic Transfer Limit Signal.
- f. If BPA's Balancing Authority Area is an intermediary Balancing Authority Area between the native and attaining Balancing Authorities (the native and attaining Balancing Authorities can be the same Balancing Authority or two different Balancing Authorities), the Dynamic Transfer Entity will arrange for either the native or attaining Balancing Authority to provide BPA with a real-time telemetry signal that represents the amount of power being Dynamically Transferred through BPA's Balancing Authority Area. This signal will be the official Dynamic Transfer and will conform to the same requirements described in step C.1.d above.
- g. Latency time is measured from the attaining Balancing Authority metering point to inclusion of the BPA Dynamic Transfer Return Signal in the same attaining Balancing Authority's ACE calculator and shall be no greater than 20 seconds.
- h. BPA will provide a **Ramp Rate Limit Signal**² to the Dynamic Transfer Entity continuously in real-time, which indicates the maximum ramp rate in MW per minute allowed for the Dynamic Transfer. As described further in step J.1, BPA may reduce the allowable ramp rate to maintain system reliability. The Dynamic Transfer Entity shall adhere to this limit.
- i. If the Dynamic Transfer Request Signal emanates from a Balancing Authority Area other than BPA's Balancing Authority Area, that Balancing Authority Area shall provide to BPA, upon request, documentation showing in detail the method of anti-aliasing and frequency cutoff it will be using to implement a Dynamic Transfer Request Signal. As required in step B.3, the Dynamic Transfer Entity is responsible for ensuring the appropriate arrangements with the applicable Balancing Authority Area to comply with this requirement.
- j. If there is a communication failure such that one or more of the requirements in steps C.1.b-h is not met, the Dynamic Transfer Entity shall immediately contact BPA Dispatch. BPA shall hold the Dynamic Transfer Limit Signal(s) at the last good value until appropriate communication is restored.
- k. All costs incurred by BPA to install telemetry for a Dynamic Transfer will be the responsibility of the Dynamic Transfer Entity requesting such service. Such costs may include, without limitation, cost of system studies performed to determine the transmission impacts of the requested Dynamic Transfer request, costs for labor, software

¹The telemetry signal communicated by BPA to the Customer or other applicable Entity to limit or reduce the Dynamic Transfer.

²The real-time telemetry signal sent by BPA to the Customer or other applicable Entity to communicate the current maximum MW/minute ramp rate limit.

for AGC, communication equipment, and costs to upgrade both the Dynamic Transfer Entity and BPA's facilities. The Dynamic Transfer Entity is responsible for ongoing maintenance costs of its own equipment. BPA Transmission Service will maintain its own equipment.

- l. If a Dynamic Transfer sources from multiple Points of Receipt (PORs) and/or sinks to multiple Points of Delivery (PODs), then BPA reserves the right to require the Dynamic Transfer Entity to provide a separate official Dynamic Transfer for each **POR¹/POD²** combination. This applies to any Dynamic Transfer into, out of, or through the BPA Balancing Authority Area and is necessary so that BPA can determine the impact of the Dynamic Transfer on the **FCRTS³**.

D. E-Tagging Dynamic Transfers

1. Each Dynamic Transfer shall be electronically e-tagged in accordance with current NERC and WECC requirements and related BPA procedures.
2. The Dynamic Transfer Entity must arrange with BPA to have Real Time Operations Dispatch and Scheduling system Accounts established for each Dynamic Transfer request. This must be arranged during a regular **Business Day⁴** and be completed prior to the Pre-schedule day.
3. E-Tags for a Dynamic Transfer must be submitted when the transmission demand set aside in the **Transmission Profile⁵** for a Dynamic Transfer is reserved. The dynamic capacity reserved shall be deemed as used.
4. The e-Tag requirements for a Dynamic Transfer are specified in BPA's Scheduling Transmission Service business practice, as may be replaced or revised, and must also include the following:

¹Point of Receipt is an interconnection on the Transmission Provider's Transmission System where capacity and energy will be made available by the Delivering Party; An OASIS field on a TSR that is the scheduling POR.

²Point of Delivery is a point on the The Transmission Provider's Transmission System where capacity and energy transmitted by the Provider will be made available to the Receiving Part; An OASIS field on a TSR that is the scheduling POD.

³Federal Columbia River Transmission System

⁴Any weekday (Monday through Friday) that is not a United States Federal Holiday.

⁵The maximum amount of firm reserved capacity set aside to cover the Energy Profile. The data on the e-Tag related to the hourly Transmission Demand.

- a. Transaction type “DYNAMIC” is required for Dynamic Schedules.
 - b. Transaction type “PSEUDO-TIE” is required for **Pseudo-Tie**¹ transactions.
 - c. Expected average **Energy Profile**² delivered during the hour.
 - d. Adjustment after the hour will use the integrated official Dynamic Transfer.
 - e. The Dynamic Transfer Entity responsible for tagging Dynamic Transfers must ensure the e-Tag is updated for the next scheduling hour and future hours when:
 - i. The average Energy Profile on the e-Tag deviates from the hourly average Energy Profile, as described in NERC Standard INT-004-2 (as may be replaced or modified);
 - ii. Requested by a Reliability Coordinator or BPA.
5. Real-time pro rata curtailments of transmission capacity that is being used to effect a Dynamic Transfer will be calculated based upon the actual Dynamic Transfer Return Signal at the time of the curtailment. The resulting Dynamic Transfer Capacity curtailment will be communicated via the Dynamic Transfer Limit Signal and via the revised e-Tag from BPA indicating the new maximum allowable Dynamic Transfer Capacity use.
 6. If BPA limits the Dynamically Transferred electrical power injected by the Dynamic Transfer Entity at a particular POR, then the Dynamic Transfer Entity will reduce the generation of its resources sourcing the Dynamic Transfer at the specific POR. The resulting change in the Dynamic Transfer Entity’s official Dynamic Transfer will be used to assess the Dynamic Transfer Entity’s compliance with the limit. Failure to comply with any Dynamic Transfer limit shall be subject to the **Failure to Comply**³ Penalty consistent with BPA’s Failure to Comply Business Practice, as may be replaced or revised.

E. Transmission Requirements Using Federal Columbia River Transmission System (FCRTS) Capacity

1. If the Dynamic Transfer Entity is using FCRTS Reserved Capacity for Dynamic Transfers, the following transmission requirements shall apply:

¹A telemetered reading, or value that is updated in real time, that represents generation or load assigned dynamically between control areas and used as a tie line flow in the affected control areas’ AGC/ACE equation, but for which no physical control area tie actually exists. To the extent that no associated energy metering equipment exists, the integration of the telemetered real time signal is used as a metered MWh value for interchange accounting purposes.

²The data on the e-Tag related to the hourly interchange schedule.

³The consequences of non-compliance as defined in the Failure to Comply Business Practice in effect at the time.

- a. The Dynamic Transfer Entity may allocate all or part of its reserved capacity to its allowed Dynamic Transfer amount.
- b. The Dynamic Transfer Entity may allocate any remaining reserved capacity to standard (i.e. non-Dynamic Transfer) transmission usage.
- c. The Dynamic Transfer Entity must have adequate reserved capacity in the Transmission Profile for the Dynamic Transfer.
- d. Population of the Energy Profile shall occur electronically using the official Dynamic Transfer after the fact based on the integrated number within 15 minutes after the end of the hour.
- e. Each Dynamic Transfer will be for only one direction over a path. The portion of reserved capacity that has been reserved for Dynamic Transfer purposes in the Transmission Profile cannot be redirected, resold, or reassigned.
- f. All reserved capacity for a Dynamic Transfer in the Transmission Profile whether or not called on, will be included in the Dynamic Transfer Entity's usage for purposes of determining whether there has been an Unauthorized Increase.

F. Transmission Requirements Not Using Federal Columbia River Transmission System (FCRTS) Capacity

1. This section applies to any Dynamic Transfer Entity that wishes to effect a Dynamic Transfer in or through BPA's Balancing Authority Area on non-FCRTS transmission. The following transmission requirements shall apply:
 - a. The Dynamic Transfer Entity must demonstrate that it has firm transmission capacity across BPA's Balancing Authority Area or on a path where BPA is the path operator for its Dynamic Transfer by setting aside reserved capacity in the Transmission Profile for the non-FCRTS path used.
 - b. The official Dynamic Transfer integrated over the hour will be used for interchange accounting purposes.

G. California-Oregon Intertie (COI) Dynamic Transfer Preschedule Methodology

1. If the total aggregated Dynamic Transfers requested on the COI exceeds the available Dynamic Transfer capacity, BPA will allocate during Preschedule the available Dynamic Transfer capacity equally to all eligible Dynamic Transfer Entities requesting Dynamic Transfers.
2. If a Dynamic Transfer Entity does not request its full allocation of capacity, the Dynamic Transfer capacity will be allocated to those Dynamic Transfer Entities that did not receive their full request.

3. The maximum Dynamic Transfer capacity that a Dynamic Transfer Entity can request is limited to the lesser of:
 - a. The amount of Dynamic Transfer capacity the Dynamic Transfer Entity has been certified to schedule by the California Independent System Operator (CAISO), or
 - b. The total Dynamic Transfer capacity allocation that BPA has granted to the Dynamic Transfer Entity, or
 - c. The capacity available for Dynamic Transfers on other paths that must also be crossed, or
 - d. Other factors limiting Dynamic Transfers.

H. Scheduling Procedures for Dynamic Transfers using COI

1. Dynamic Transfer Entities that want to use their firm Reserved Capacity for a Dynamic Transfer over the COI must follow the procedures described below:
 - a. The Dynamic Transfer Entity must notify BPA's Preschedule by 08:00:00 PPT¹ of the WECC Preschedule day of the amount of Dynamic Transfer capacity it wants to use. Such notification must be made by email to BPATPreschedule@bpa.gov. The email should include the account number, transmission path, MW of Dynamic Transfer capacity for each hour of the Preschedule period, and day total.
 - b. The amount of Dynamic Transfer capacity requested must be entered for each hour or the requested amount will be assumed zero, and the Dynamic Transfer Entity will have no allocation for that hour.
 - c. Notification of the Dynamic Transfer Entity's allocation of Dynamic Transfer capacity shall be provided by email to the Dynamic Transfer Entity no later than 09:45:00 PPT. The Dynamic Transfer capacity allocation will not change after this time.
 - d. The Dynamic Transfer Entity will then modify its Dynamic Transfer capacity amount by e-Tag to be equal to or less than its Dynamic Transfer capacity allocation. The Dynamic Transfer Entity must submit its final prescheduled Dynamic Transfer to BPA no later than one hour after the close of the California final Day-Ahead Market for the California-Oregon Intertie (COI). Preschedule staff will check the Dynamic Transfer capacity accounts by close of Preschedule to ensure that each account is not greater than the allocated amount of Dynamic Transfer. If the Dynamic Transfer Entity exceeds its Dynamic Transfer capacity allocation, BPA's Preschedule staff shall reduce the schedule and notify the Dynamic Transfer Entity.

¹Pacific Prevailing Time

- e. The Dynamic Transfer Entity can decrease its Dynamic Transfer capacity accounts as needed in real-time twenty minutes prior to the hour of delivery, but the account must contain only the Dynamic Transfer capacity needed to meet the Dynamic Transfer Entity's obligation in the CAISO market or other COI transaction as represented by valid e-Tags.

I. Limitations on Dynamic Transfer

1. A **Dynamic Schedule**¹ will be allowed to move from zero MW to the BPA determined maximum allowed MW for a Dynamic Transfer within the **Operating Hour**² in one direction over the path.
2. A Pseudo Tie will be allowed to move within a BPA assigned bandwidth around the estimated usage shown on the Type-Pseudo-Tie e-Tag within the Operating Hour in one direction over the path.
3. The Transmission Profile shall not be exceeded during the hour of flow -this applies to both Dynamic Schedules and Pseudo Ties.
4. BPA may limit or freeze a Dynamic Transfer (including ramp rates) into, out of or through BPA's Balancing Authority Area at any time if the reliability of the FCRTS or associated interconnection is threatened where the Dynamic Transfer is a contributing factor to the problem being encountered -even if no other transactions or **ATC**³ are curtailed. In more serious cases, BPA may also have to curtail ATC to maintain reliability.
5. Examples of when BPA may take action to limit or freeze a Dynamic Transfer include, but not limited to:
 - a. staying within acceptable limits during real-time operations;
 - b. performing acceptably after contingencies; and
 - c. effecting restoration after loss of system elements.
6. The Dynamic Transfer limit will be the lower of the reliability limit or the Transmission Profile on the e-Tag. Failure to comply with any Dynamic Transfer limit shall be subject to the Failure to Comply Penalty consistent with BPA's Failure to Comply Business Practice, as may be replaced or revised.
7. BPA is the path operator of the northern portion of the COI. BPA is also the Balancing Authority in which the northern portion of the COI is located.

¹A telemetered reading or value that is updated in real time and used as a schedule in the Automatic Generation Control (AGC) and the Area Control Error (ACE) equation and the integrated value of which is treated as a schedule for interchange accounting.

²The current hour. Also defined as the Clock Hour.

³Available Transfer Capability

8. Each Dynamic Transfer over the COI must be monitored and operated through BPA's Balancing Authority Area without regard to whose transmission rights are used.
9. Dynamic Transfer schedules are limited to 200 MW in aggregate during 0600 to 2200 every day and 550 MW during 2200 to 0600 every day over the California-Oregon Intertie (COI).
 - a. If the total aggregated Dynamic Transfer schedules requested exceeds the available Dynamic Transfer capacity, BPA Transmission Services will allocate, during Preschedule, the available Dynamic Schedule capacity equally to all Entities submitting Dynamic Schedules utilizing the COI.
10. Dynamic Schedules over the Northern Intertie are limited to 300 MW in aggregate.
11. Dynamic Transfers are not allowed over the DC Intertie at this time.

J. Dynamic Transfer Ramp Rate

1. BPA may establish a maximum ramp rate limitation for each Dynamic Transfer and may lower the maximum ramp rate due to system conditions.
2. Failure to follow Ramp Rate Limit Signal will be subject to a Failure to Comply Penalty consistent with BPA's Failure to Comply business practice, as may be replaced or revised.

K. Load & Resource One-Day Forecast Requirements

1. Load and resource forecasts are necessary to allow BPA to plan the Transmission System, determine the usage of constrained transmission paths for the calculation of ATC and Available **Flowgate**¹ Capability and to determine curtailment priority.
2. Dynamic Transfer Entities with loads outside the BPA Balancing Authority Area, which are served with a resource dynamically transferred using transmission in BPA's Balancing Authority Area, must submit or arrange to have submitted one-day forecasts for the use of that resource for each POR/POD combination for each hour of the following delivery day.

¹Flowgate (Cutplane): Transmission lines and facilities owned by BPA on a constrained portion of BPA's internal network transmission grid or transmission lines and facilities owned by BPA and one or more neighboring transmission providers that are interconnected and the separately owned facilities are operated in parallel in a coordinated manner, and each of the owners has an agreed upon allocated share of the transfer capability.

3. Forecasts are to be provided on the prescheduled day in accordance with the Pre-schedule ancillary services window. Forecasts may be updated in accordance with the real-time window.
4. If multiple days are being prescheduled, then hourly load forecasts for all days being pre-scheduled must be submitted.
5. BPA will treat these one-day forecasts as the equivalent of transmission usage for purposes of ATC, curtailment, and **Energy Imbalance**¹ calculations.
6. Forecasts will be submitted consistent with the scheduling provisions of the Dynamic Transfer Entity's transmission contract and may not exceed transmission contract demand.

L. Additional Information

Policy Reference

This Business Practice implements BPA's policies relating to operating and scheduling requirements for dynamic transfers on the Federal Columbia River Transmission System.

Related Business Practices

- Requesting Access to Dynamic Transfer Capability – Pilot
- **On Demand Resource**² Scheduling
- **Redispatch and Curtailment Procedures**³
- Requesting Transmission Service
- Scheduling Transmission Service
- Failure to Comply

¹Difference occurring between hourly scheduled amount and hourly metered (actually-delivered) amount associated with transmission to a load located in BPA's Balancing Authority Area or from a generation resource located within BPA's Balancing Authority Area.

²a. A resource located within BPA's Balancing Authority Area; b. An arrangement with a neighboring Balancing Authority that allows the delivery of power on BPA's system to or from a neighboring system; or c. A Demand Response Resource capable of meeting the technical requirements for an On Demand Resource.

³Measures taken to relieve transmission system overloads and therefore manage loading on the transmission system to within the Operating Transfer Capability (OTC).

- **Unauthorized Increase Charge**¹

Version History

Version 3	11/13/12 Version 3 of this Business Practice updates the process for submitting Dynamic Transfer Capacity from sending notification by fax to sending the notification by email in step H.1.a and H.1.c.
Version 2	02/22/12 Included the Dynamic Schedule Limits Bulletin incorporated as steps I.8-10. The incorporation moves all associated information from the Bulletin into one document.
Version 1	11/01/10 Posted for customer comment through 12/17/10 02/20/11 Posted again for customer comment 02/03/11 through 02/18/11. Added 3 to the Introduction and removed the second paragraph from the introduction.

¹Transmission Customers taking Point-to-Point Transmission Service under the PTP, IS, and IM Rate Schedules shall be assessed the UIC when they exceed their capacity reservations at any Point of Receipt (POR) or Point of Delivery (POD). Transmission Customers taking Network Integration Transmission Service under the NT Rate Schedule shall be assessed the UIC if their Actual Customer-Served Load (CSL) is less than their Declared CSL. BPA-TS will notify a Transmission Customer that is subject to a UIC once BPA-TS has verified the UIC amount.